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Adjustable Prone Trolley Design for People Suffering from Spinal Cords Injuries in Nepal

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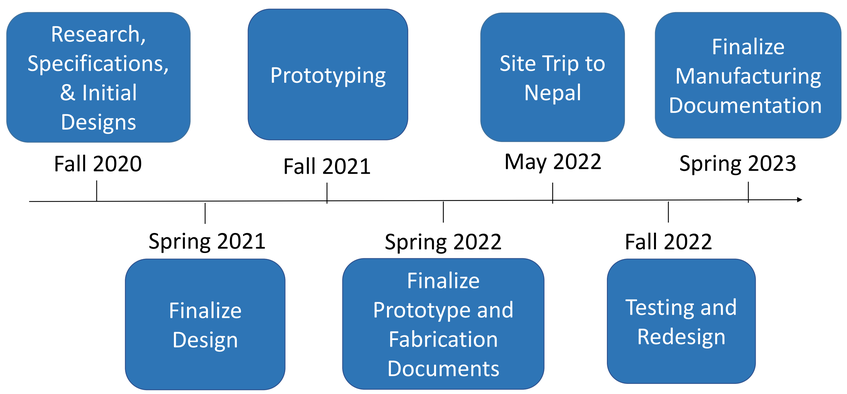
OUR CLIENT: INTERNATIONAL NEPAL FELLOWSHIP

The Nepal Prone Trolley Team is partnered with International Nepal Fellowship (INF), a Christian, medical organization that manages a hospital in Pokhara, Nepal (Green Pastures Hospital) which specializes in patients with spinal cord injuries.

PROBLEM STATEMENT

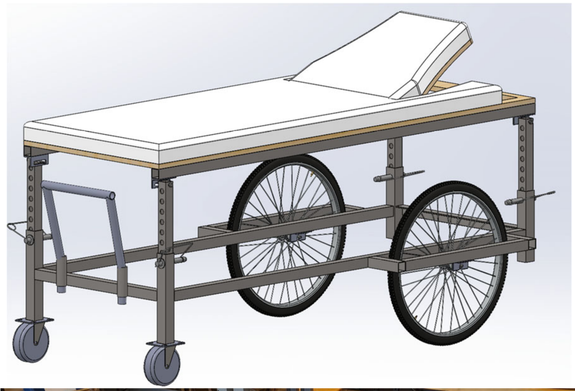
International Nepal Fellowship has a few prone trolleys at their Green Pastures Hospital in Pokhara, Nepal. However, they are becoming outdated and are hard to maintain. The Nepal Prone Trolley project seeks to come alongside INF by designing, prototyping and creating manufacturing documentation for a new prone trolley design that is cheaper and more durable than their current options.

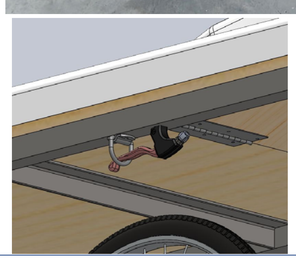
PROJECT TIMELINE

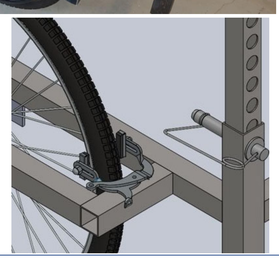


TROLLEY DESIGN

The Trolley Design combines multiple components from preliminary designs to best meet client specifications. The key features of the trolley design are the lightweight frame, adjustable chest piece & table, push handle, and the parking brake. The chest piece allows for the patient's chest to be elevated in order to see in front of them and be in a comfortable position to reach the wheels. The lightweight frame allows for the trolley height to be adjusted for patient transfers and patient comfortability. The purpose of the parking brake is to keep the trolley stationary during patient transfers and when the patient wants the trolley to be parked .

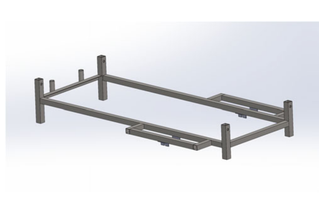


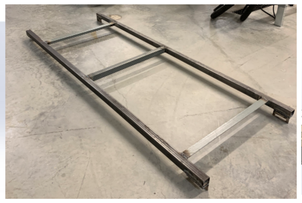


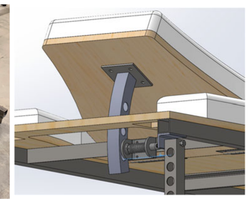


FABRICATION

Fabrication consisted of creating and assembling multiple parts of the trolley. Stick welding, the available method in Nepal, was utilized during fabrication. The top frame consisted of welded steel tubes and angle iron to match our design. The bottom frame was fabricated the same as the top frame, and then wheel mounts, the plates for the caster wheels and the tubes for the push handle were attached. The wheels were bolted to the trolley in their respective locations. The chest piece consists of two parts, the pin is attached to the front angle iron on the top frame and the other piece is attached to the plywood.







TESTING

Completed testing has consisted of basic testing of the ease with which the trolley moves, the ease of patient use and the ease of adjusting the height of the trolley. Future testing will consist of testing the frame strength, height adjustments (with & without patients onboard), mobility (turning radius) and the parking brake functionality.

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